



# NCO NEWS

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## Federal Agencies Receive \$110 Million in FY 1999 Next Generation Internet Funding

The Next Generation Internet (NGI) initiative will receive \$110 million in Fiscal Year (FY) 1999 Federal funding, appropriated to the participating Federal agencies in the FY 1999 Omnibus Appropriations Act signed by President Clinton October 21, 1998. The agency appropriations are:

Department of Defense/Defense Advanced Research Projects Agency	\$50M
National Science Foundation	\$25M
Department of Energy	\$15M
National Aeronautics and Space Administration	\$10M
National Institute of Standards and Technology	\$ 5M
National Institutes of Health/National Library of Medicine	\$ 5M

Agencies will employ funds to further the goals of the NGI initiative, which include conducting research and development (R&D) in advanced end-to-end networking technologies, establishing and operating advanced testbeds, and conducting R&D in revolutionary applications that benefit from more powerful networks. FY 1999 marks the second year of funding for the NGI program. For more information about the NGI initiative, visit <http://www.ngi.gov/>.

## President Clinton Signs Next Generation Internet Research Legislation

On October 28, 1998, President Clinton signed into law the Next Generation Internet (NGI) Research Act, a bill designed to keep the U.S. on the cutting edge of Internet technology development. Passed by Congress with strong bipartisan support, the legislation facilitates ongoing Federal research into critical computing, information, and communications technologies.

Among other directives, the new law:

- Authorizes research programs related to high-end computing and computation, human-centered systems, high confidence systems, and education, training, and human resources
- Provides for the development and coordination of a comprehensive and integrated U.S. research program on computer network infrastructure, high-speed data access, and networking technology
- Directs the National High-Performance Computing Program to provide for technologies that advance Internet capacity and capabilities and for high-performance testbed networks to develop and demonstrate advanced networking technologies and applications
- Authorizes participating Federal agencies to support the NGI initiative, with specified objectives for increasing Internet capabilities and developing other networking technologies
- Authorizes NGI initiative appropriations for FY 1999 and 2000

(cont. as NGI Legislation on page 3)

## PITAC Solicits Feedback on Interim Report

The President's Information Technology Advisory Committee (PITAC) held a public meeting in Arlington, VA, on November 4 to review recommendations from its Interim Report to the President and to solicit input from Government officials and the public. The Committee is expected to submit a final report to the President in early 1999.

The Interim Report, issued in August, sets out a bold agenda for ensuring America's leadership in the Information Age by expanding Federal investments in long-term research and development in technologies such as computers, networks, and software.

Recognizing the critical role that Federal research has played in developing modern computing, the Internet, and other Information Age technologies, the Committee urged the President to ensure that this momentum is maintained. The Committee argued for sharply increased support for basic research, giving highest priority to research on computer software. They also stressed the importance of allowing the research community to "live in the future" and tackle long-term high-risk research challenges.

(cont. as PITAC Report on page 4)

### House Science Committee Unveils National Science Policy Study

A new study by the House of Representatives' Committee on Science outlines a long-range science policy framework predicated on advancing U.S. economic, rather than military, interests. Released in September 1998, the National Science Policy Study is the first Congressional review of national science and technology issues since the Cold War began. Key findings and recommendations include:

- ◆ To narrow the widening gap between Federally-funded, long-term, basic research and industry-funded, short-term, applied research, Congress should:
  - Provide stable and substantial Federal funding for fundamental research across a spectrum of scientific disciplines, mathematics, and engineering
  - Allocate a fraction of its grant monies to creative ground-breaking research
  - Encourage capitalization of new technology-based companies, especially those focused on long-term basic research
  - Extend permanently the R&D tax credit
  - Eliminate needlessly onerous regulations that inhibit corporate research
- ◆ To stimulate basic research, technology transfer between basic research and commercial applications, and local economic development, Congress should:
  - Promote industry-university partnerships
  - Encourage states to play a greater role in high tech industry development through support of both college and research institutions and interactions between those institutions and the private sector
  - Encourage less research-intensive educational institutions to develop scientific or technological expertise in areas that complement local expertise and contribute to local economic development strategies

The study also outlines recommendations for improving science education and using science to resolve environmental and societal challenges. It will serve as a policy guide for the House Committee on Science and the U.S. Congress. For more information about the study, visit [http://www.house.gov/science/science\\_policy\\_study.htm](http://www.house.gov/science/science_policy_study.htm).

### NSF High Performance International Internet Services Awards Go to Indiana University and the University of Tennessee

Indiana University and the University of Tennessee will receive multi-year, multi-million-dollar grants for international high performance network connections under the National Science Foundation's (NSF's) High Performance International Internet Services (HPIIS) program. Announced in September 1998, the awards support development of connections via the Science, Technology, and Research Transit Access Point (STAR TAP) to the Asia-Pacific region and to Russia. When operational, these connections, together with other U.S. and international networks that peer at STAR TAP, will create for the first time a global high speed research network to facilitate new applications and educational collaborations.

Indiana University will receive approximately \$10 million over five years to fund a U.S. half circuit for a 35 Mbps (megabits, or million bits, per second) ATM service between the STAR TAP in Chicago and Tokyo and for network engineers to support the connection. The other half circuit is expected to be provided by KDD, Japan's main international carrier, with funding

from the Japan Science and Technology Corporation. Called TransPAC, the connection will link the Asia Pacific Advanced Network to the U.S. Government's Next Generation Internet initiative's networks, such as NSF's very high performance Backbone Network Service (vBNS).

The University of Tennessee will receive \$4 million over five years to support a 6 Mbps ATM service between STAR TAP in Chicago and Moscow as well as U.S.-based personnel/operational costs. Additional funding for the project, called MirNET, will be provided by the Russian Ministry of Science. MirNET will connect the emerging high performance ATM network in Moscow, St. Petersburg, and other Russian academic centers to NSF's vBNS and other U.S. and international high performance networks. Ameritech, in concert with Rostelecom and TeleDanmark, is providing the ATM service.

For more information, visit <http://www.transpac.org/> or <http://www.friendspartners.org/friends/mirnet/home.html>.

## NSF High Performance Connections Awards Go to 36 Universities

The National Science Foundation (NSF) awarded grants to 36 universities in September for links to NSF's very high performance Backbone Network Service (vBNS) or to other NSF-approved high performance networks. These High Performance Connections grants will provide most recipients up to \$350,000 over two years to offset the costs of linking their sites to the powerful vBNS backbone. The connections will allow scientists and engineers to collect and share vast amounts of data, collaborate across large distances, and run complex equipment remotely.

The vBNS is the initial interconnect for Internet2 member institutions. Proposed university connections to the network are evaluated by a peer review process and approved on the basis of scientific and technical merit. Of the 36 universities receiving awards, 15 are eligible for additional funding to help defray extra costs associated with their remote geographic locations. Universities receiving grants are:

Arizona State University  
Colorado State University  
Emory University  
Florida A&M University  
Kansas State University  
Kent State University  
University of Kansas  
Lehigh University  
Louisiana State University  
Mississippi State University  
New Mexico State University  
North Dakota State University  
Northeastern University (MA)  
Oklahoma State University  
Rensselaer Polytechnic Institute  
South Dakota School of Mines and Tech.  
South Dakota State University  
State University of New York at Buffalo  
Tulane University  
University of Arkansas Fayetteville  
University of Central Florida  
University of Cincinnati  
University of Delaware  
University of Maine, Orono  
University of New Hampshire  
University of North Dakota  
University of Oklahoma

University of Oregon  
University of Pittsburgh  
University of Rhode Island  
University of Rochester  
University of South Dakota  
University of South Florida  
Utah State University  
Wake Forest University  
West Virginia University

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### NGI Legislation

Highlighting the importance of the Internet and the new legislation to the U.S. economy, Vice President Gore noted, "The Internet is driving a \$2 trillion global information and communications industry that has accounted for roughly one-third of U.S. economic growth in recent years. More than 7.4 million Americans work in information technology (IT) industries and in related occupations, earning wages that are more than 60 percent higher than the private sector average." He added that more than 70 million Americans now use the Internet.

## National Library of Medicine Supports 24 Next Generation Internet Projects

The National Library of Medicine (NLM) in mid-October announced 24 contract awards totaling \$2.3 million to medical institutions and companies that will develop innovative medical projects benefiting from Next Generation Internet (NGI) capabilities. NLM is funding the demonstration projects to improve understanding of how the NGI can affect health care, health education, and health research systems in such areas as cost, quality, usability, efficacy, and security. The projects receiving awards are:

- Adopting the NGI as a Tool for Healthcare and Information Access
- Applications Layer Security Solution for Stationary/Nomadic Environments
- Biomedical Tele-immersion
- Distributed Revolutionary Medical Education Environment
- G-CPR and the NGI
- Human Embryology Digital Library
- Implementation to Serve Visible Human Datasets
- Integration of Security Mechanisms for Internet Applications
- Interactive Medical Data on Demand: a High-Performance Image-based Warehouse Across Heterogeneous Environments
- Medical Nomadic Computing Applications for Patient Transport
- National Emergency Medicine Information Extranet
- Networked 3D Virtual Human Anatomy
- NGI-Aware, Scalable, Secure, and Adaptive Technology for Rural Telemedicine
- Open Architecture Multispecialty Data and Telemedicine Integration on the Next Generation Internet
- Pathology Image Database System
- Patient-centric Healthcare Management over NGI
- Personal Internetworked Notary and Guardian
- Radiation Oncology Treatment Planning/Care Delivery Application
- Remote, Real-time Simulation for Teaching Human Anatomy and Surgery
- Rural Health Science Education
- Secure Radiologic Collaboration on the Next Generation Internet
- Telemammography Using the NGI
- Teletrauma and the NGI
- The Empathy Network: Improved Healthcare Delivery for Survivors of Mild Traumatic Brain Injury

For more information on the NGI and telemedicine, visit the NLM home page at <http://www.nlm.nih.gov/>

### **DARPA Solicits Proposals for Information Technology Expeditions**

The Defense Advanced Research Projects Agency's (DARPA) Information Technology Office issued several Broad Area Announcements (BAAs), or requests for proposals, in October and November, including an announcement requesting proposals for Information Technology Expeditions into the 21st Century.

The goal of these Expeditions, which were recommended in the President's Information Technology Advisory Committee's Interim Report, is to encourage vigorous and revolutionary research in information technology. The BAA solicits proposals for radically new visions of the future of information technology that step outside of the present and anticipated models, both of the technology itself and of the domains and modes in which it is applied. The Expeditions may focus on either a discipline-based theme such as bio-informatics or on an infrastructure-based theme such as ubiquitous computing. To establish a context, each Expedition should be based on assumptions not true today, such as worldwide availability of near infinite bandwidth.

For more information about the Information Technology Expeditions and other DARPA Information Technology BAAs, visit <http://www.darpa.mil/ito/>.

### **DARPA Grants NGI Supernet Awards**

The Defense Advanced Research Projects Agency (DARPA) recently selected two consortia to develop advanced networking research testbeds as part of the Next Generation Internet (NGI) Supernet Program.

DARPA is providing the Optical Networking for Regional Access with Multiple Protocols (ONRAMP) Consortium with \$10 million over three years to create an advanced research testbed and use optical networking to investigate new approaches to the operation of Internet protocols. ONRAMP will extend the reach of high-speed connectivity to end-users and demonstrate the cost-effective distribution of network bandwidth to multiple end sites. DARPA is also providing the National Transparent Optical Networks (NTON) Consortium with \$10 million over three years to create an ultra-high-speed testbed linking Seattle and San Diego. Researchers will test advanced applications over NTON at speeds up to 1,000 times faster than those commercially available today.

In April 1998, DARPA announced 27 other NGI awards totaling approximately \$50 million. For more information, contact Jan Walker at 703/696-2404.

### **NOAA to Lease New Supercomputer**

The National Weather Service awarded a contract to lease a new supercomputer that will significantly improve its weather, flood, and climate forecasts for the country from International Business Machines (IBM), the Commerce Department's National Oceanic and Atmospheric Administration (NOAA) announced on October 9. The four-year, \$35.6 million contract, awarded to IBM of Somers, NY, is contingent on the availability of funding.

The new high-performance Class VIII computing system will allow the National Weather Service's National Centers for Environmental Prediction in Camp Springs, MD, to operate more sophisticated models of the atmosphere and oceans to improve weather, flood, and climate forecasts for the country. A Class VIII computer is a system representative of the eighth generation of high-performance computers, where each generation represents approximately a five- to ten-fold increase in sustained computational power over the previous generation.

The new system will use a highly parallel computer architecture to immediately provide a significant increase in computational capacity as compared to the current system, a Cray C-90 supercomputer from Silicon Graphics, Incorporated. The new supercomputer, which will be housed at the Suitland Federal Center in Suitland, MD, will be installed beginning in December 1998 and integrated into routine operations beginning in the spring of 1999. The transition of operations to the new system will be completed in late 1999.

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#### **PITAC Report**

Specifically, the Committee recommends placing emphasis on:

- ◆ Techniques for developing software that is more dependable and reliable
- ◆ Communication systems that can support billions of users and devices that are attached to the network
- ◆ High-speed computers and software that can deliver useful performance that is a thousand times faster than today's most powerful supercomputers
- ◆ Research that ensures that America's workforce is properly prepared for the challenges and opportunities of the Information Age

A copy of the report is available at <http://www.ccic.gov/>.